A Case of Pulmonary Squamous Cell Carcinoma Revealed Ground Glass Opacity on Computed Tomography

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During a routine health checkup in a 68-year-old woman, a ground glass opacity[1] (GGO) measuring 36 × 30 mm in diameter was detected in the right upper lobe of the lung using computed tomography (CT; Fig. 1*A*). She was a never-smoker, had no history of malignancy at any other site, and no history of pulmonary tuberculosis. A transbronchial biopsy specimen obtained from the lesion at that time did not show any malignant cells, the progress of the lesion was followed after discussion with the patient. After 9 years, CT images showed slight enlargement of the GGO and a central high-density area (Fig. 1*B*). The transbronchial examination was repeated, but there were no malignant findings on histological examination and there was no evidence of pulmonary tuberculosis after polymerase chain reaction analyses. Malignancy could not be ruled out, and a right upper lobectomy with mediastinal lymph node dissection was performed. Grossly, the cut surface of the resected lung specimen showed an ill-circumscribed, yellow-tan, tumor measuring 43 × 38 mm in diameter. The microscopic findings showed a solid-growth carcinomatous lesion containing keratinization beneath the pleura (Fig. 2). In addition, in the tumor periphery, tumor cells were spread along the alveolar wall with a lepidic growth pattern (Fig. 3*A*). Immunohistochemically, the tumor cells were positive for cytokeratin 5 of 6 (Fig. 3*B*) and p40, but negative for Napsin

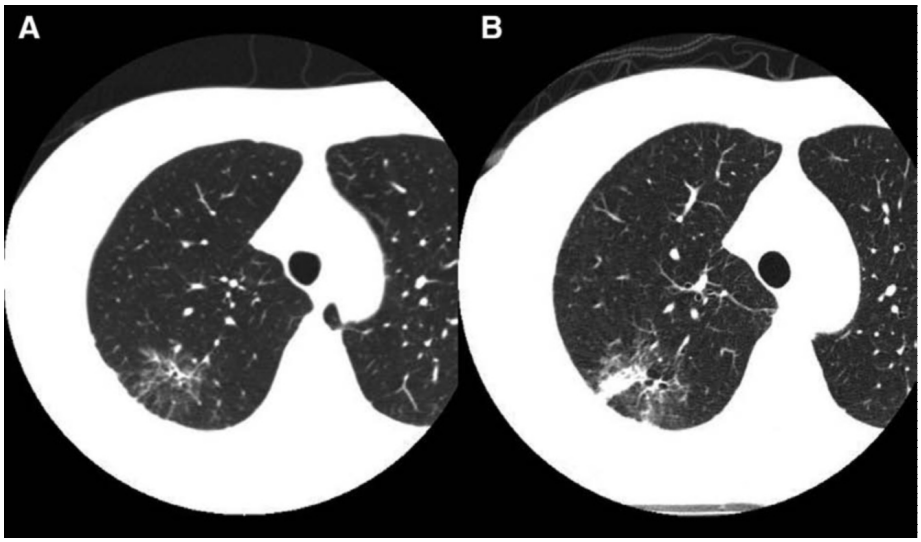

FIGURE 1. *A*, An initial CT image revealed a lesion with GGO measuring 36 × 30 mm in the right upper lobe of the lung. *B*, After 9 years, enlargement of the GGO to 43 × 38 mm with a central high-density area was observed on chest CT. CT, computed tomography; GGO, ground glass opacity.

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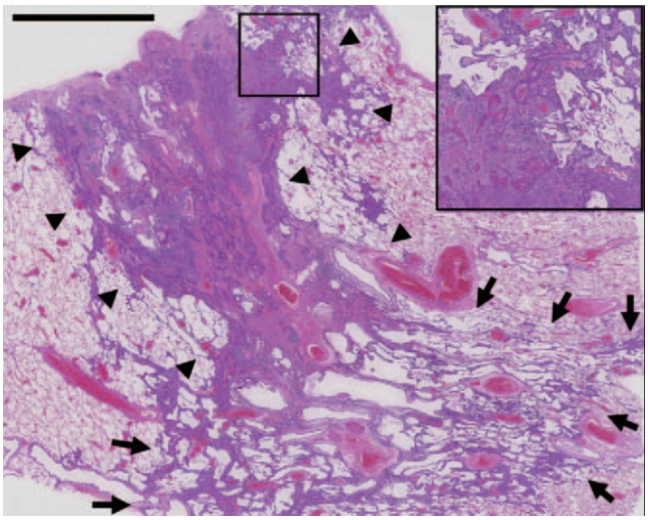

FIGURE 2. A low magnification view of the tumor showed keratinized tumor cell proliferation in the solid-growth area (*arrowheads*; hematoxylin and eosin staining, *scale bar* 5 mm). In addition, tumor cells spread along the alveolar walls with a "lepidic-growth" at the periphery (*arrow*). In inset: Transition region from solid-growth area to lepidic-growth area.

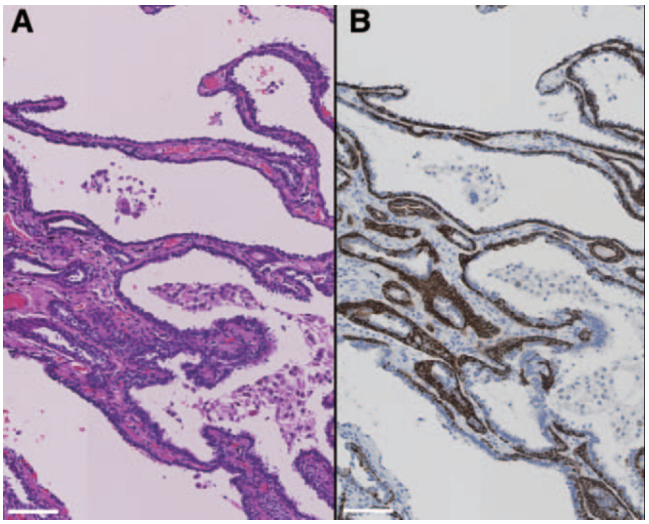

FIGURE 3. A high magnification view of the lepidic growth pattern region seen in Figure 2. *A*, Tumor cells spread along the alveolar wall with type II pneumocyte proliferation (hematoxylin and eosin staining, *scale bar* 100 μm). *B*, Immunohistochemically, the tumor cells were positive for cytokeratin 5 of 6 (*scale bar* 100 μm).

A and thyroid transcription factor 1. There was no evidence of lymph node metastasis. The patient did not harbor *EGFR* or *KRAS* mutations. Immunohistochemically, tumor cells were negative for p16 antibody, indicating that this tumor was not associated with human papillomavirus. In addition, an in-situ hybridization test of Epstein-Barr virus was negative, indicating the absence of lymphoepithelial carcinoma. Consequently, the patient was diagnosed with squamous cell carcinoma with a lepidic growth pattern. At present, at the 4-year follow-up, the patient shows no signs of recurrence.

Many reports have indicated that a GGO on chest CT was associated with lepidic growth pattern lung adenocarcinoma.[2,3] Others have reported the presence of GGO on CT in adenosquamous carcinoma of the lung.[4] The current case showed reactive type II pneumocyte proliferation in the tumor, but no evidence of adenosquamous carcinoma. In addition, the tumor in this case was not aggressive, displaying slow progression and no recurrence 4 years postresection. It is possible that this is a special type of squamous cell carcinoma with a favorable prognosis.

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